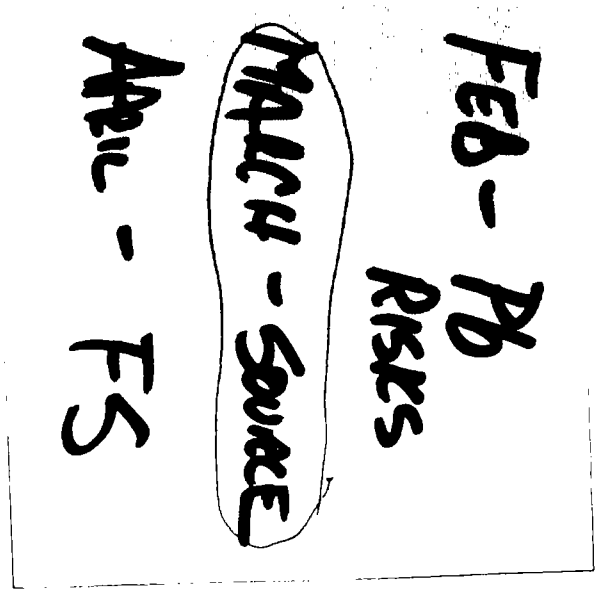
VBI70
WORKING GROUP
BRIEFING

02/01/01



EXPOSURE AND RISK FROM LEAD

PENDING DATA

Needed before risk assessment can be finalized

- Site-specific RBA for Lead

  (Results are imminent)

- Site-specific GSD (??)

  (Based on limited data to be provided by the State)

- Site-specific relation between soil and blood lead (????)

  (Based on soil data from EPA and blood lead data to be provided by the State)

LEVELS AND RISKS FROM ARSENIC

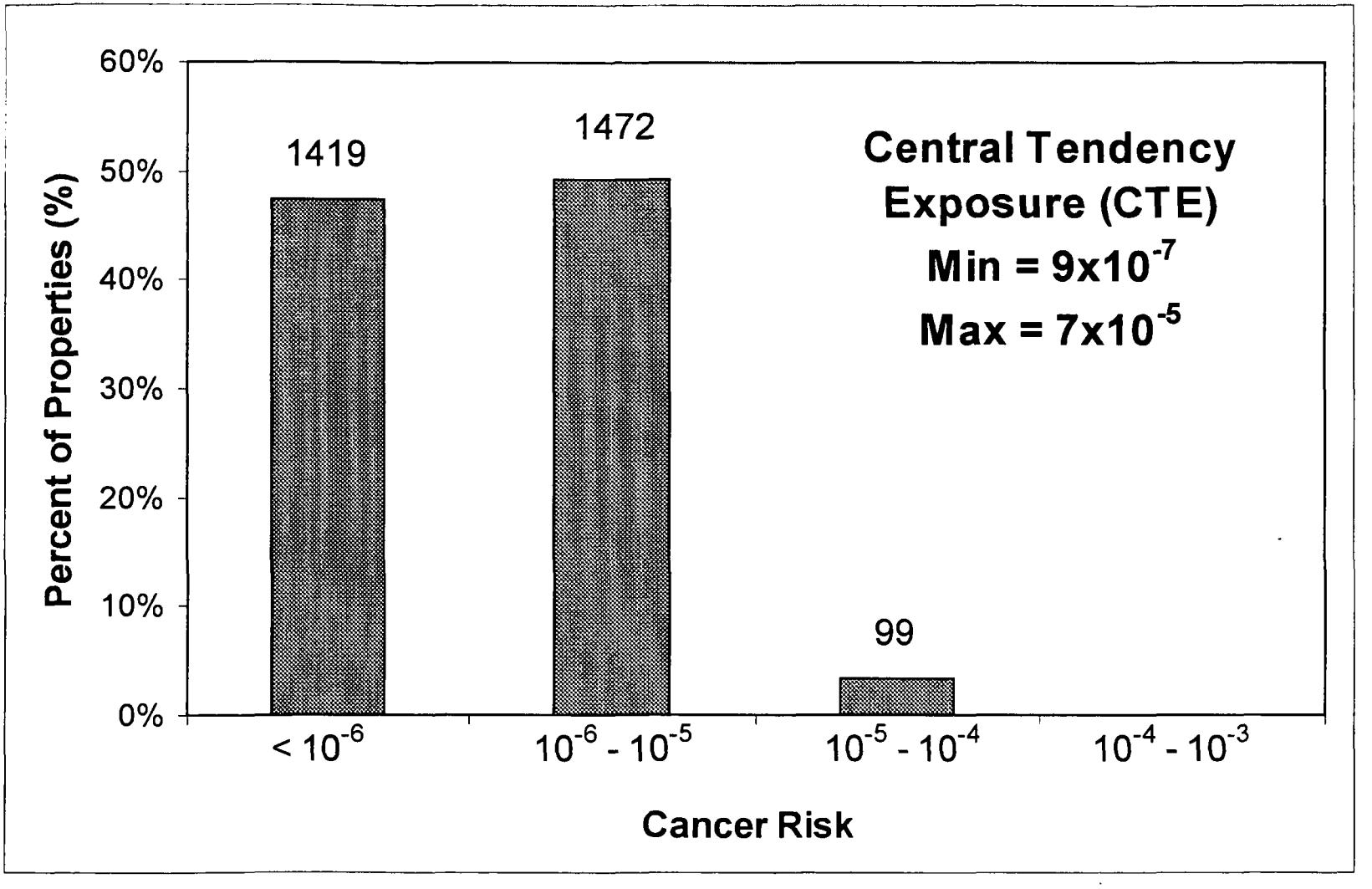
Cancer Risk from Chronic Exposure

Non-cancer Risk from Short-term Exposure

REVISED RBA DATA FOR ARSENIC

Test material	OLD	NEW
TM-1	0.37	0.35
TM-2	0.43	0.45
TM-3	0.37	0.36
TM-4	0.58	0.21
TM-5	0.18	0.18
Mean	0.39	0.31
95% UCL	0.52	0.42

CANCER RISKS
FROM CHRONIC ARSENIC EXPOSURE



EVALUATION OF SHORT-TERM NONCANCER RISKS TO RESIDENTS FROM ARSENIC IN SOIL

Sub-chronic	(e.g., several months to several years)
Sub-acute	(e.g., several weeks)
Acute	(e.g., 1-2 doses)
Acute-Pica	(1 dose, high soil intake)

HQ = Site Dose compared to Safe Dose (RfD)
Site Dose = C * IR/BW *RBA
Safe Dose = RfD

Parameter	Case 1	Case 2	Case 3 (ATSDR recommended)	Case 4 (Worst Case Default)
BW (kg)	12.3	12.3	10	10
IR (grams)	10	5	5	10
RfD (mg/kg-d)	0.005	0.02	0.005	0.005
RBA	0.4	0.4	?	0.8

Used for VBI70

NOTE: The concentration term is the maximum in the yard, not the mean or UCL

CALCULATION OF MTHC

THC = "MAXIMUM THEORETICAL HOTSPOT CONCENTRATION"

ach Phase 3 sample is a 10-point composite

orst Case Scenario:

9 samples at background are mixed with one sample from a hotspot

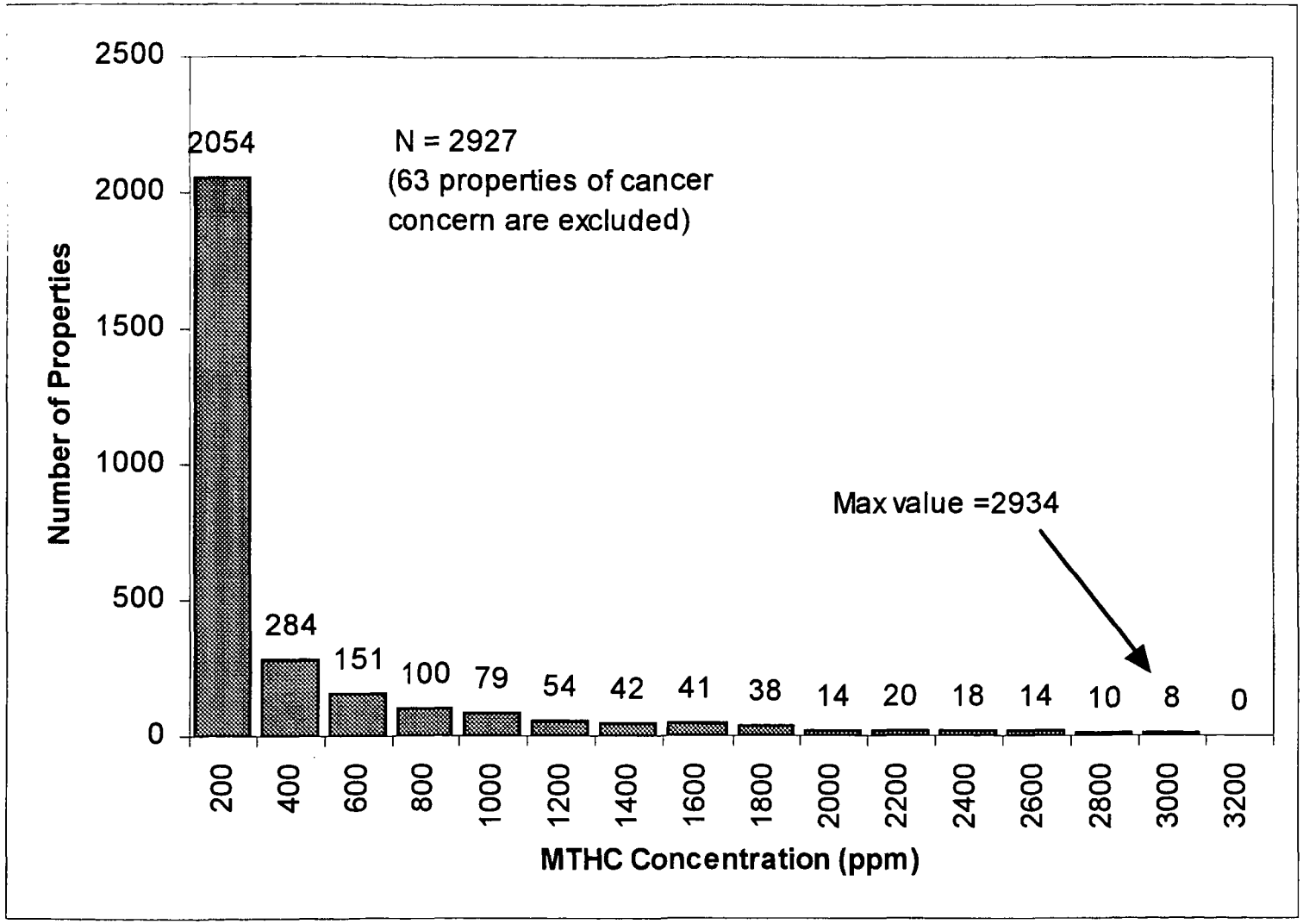
Then

Composite = (9*Background + 1*Hot spot) / 10

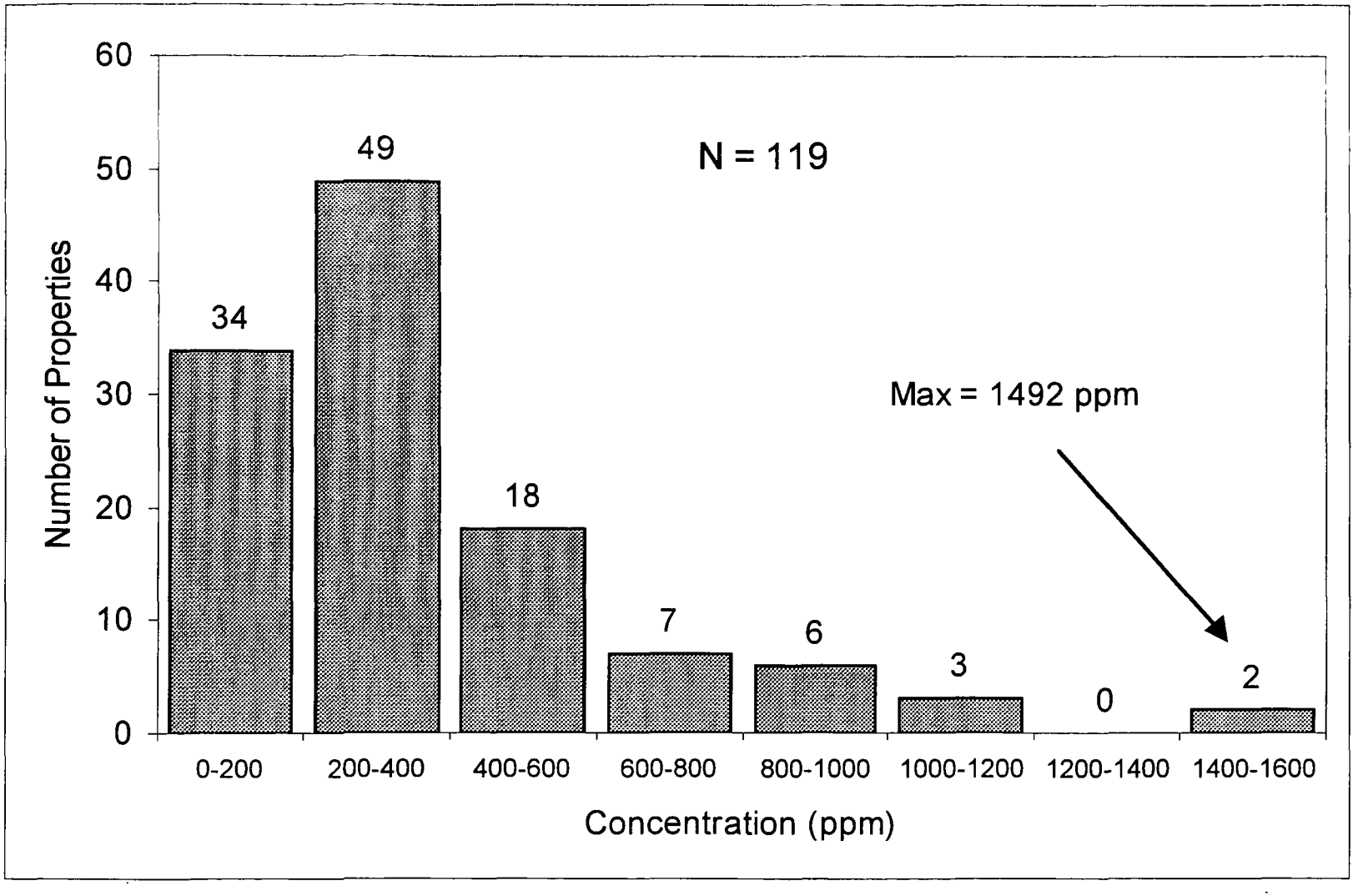
hus, the MTHC is:

MTHC = 10*Composite - 9*Background

DISTRIBUTION OF ARSENIC MTHC VALUES



DISTRIBUTION OF MAXIMUM CONCENTRATIONS IN GRAB SAMPLES



POTENTIAL RISK MANAGEMENT STRATEGIES FOR ACUTE RISKS FROM ARSENIC

1. Health Education

Provide parents with information on potential risks from acute exposures to arsenic, along with advice on how to prevent pica behavior and what to do if exposure occurs. Establish a biomonitoring progra to evaluate if exposures are occurring. Do not remediate soil based on acute scenario only.

2. Obtain Better Data Before Acting

Declare that acute risk calculations are not reliable and that studies are needed to get better answer. In the interim, provide biomonitoring and follow Approach 1 until an appropriate action level can be defined. Once an appropriate action level has been defined, re-sample locations where MTHC is above, and remediate as appropriate based on the observed maximum

3. Attack the Worst Cases Now

Declare that even though there is uncertainty, acute risks above some level (e.g., most realistic HQ > 20) are likely to be of concern, and that action will be taken at these homes now. Re-sample where th MTHC exceeds the selected trigger level to establish the true maximum, and remediate as appropriate. In the interim, follow Approach 2 to see if action is needed at lower levels.